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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,749	12/29/2004	Naomi Noda	122341	9225
25944	7590	12/14/2007		
OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850			EXAMINER NGUYEN, CAM N	
			ART UNIT 1793	PAPER NUMBER
			MAIL DATE 12/14/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/519,749

**Applicant(s)**

NODA ET AL.

**Examiner**

Cam N. Nguyen

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 9/24/07 (an amendment/response).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8-12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-12 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### Response to Amendment

1. The amendment and remarks, filed on September 24, 2007, has been made of record and entered. Claims 1-7 & 13 have canceled. Claims 8 & 14 have been amended.

Claims 8-12 & 14 are currently pending in the application.

### Claim Rejections - 35 USC § 102(e)

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 8 & 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Sangiovanni et al., "hereinafter Sangiovanni '561", (US Pat. 6,649,561 B2).

Sangiovanni '561 discloses a honeycomb photocatalyst matrix, which comprises a honeycomb-shaped skeletal structure of lightweight material, possibly ceramic or more typically a metal, such as aluminum, formed or assembled as an array of multiple, substantially parallel cells open at opposite ends for fluid flow therethrough and illumination therewithin, the cells having respective surfaces, and a coating of photocatalyst on the surfaces of the cells, whereby the coated surfaces are activated by ultraviolet illumination to remove contaminants from fluid flowing through the cells (see col. 2, ln 23-33). When the metal substrate is used instead of

Art Unit: 1793

ceramic substrate, the ceramic oxide layer is provided on both sides of the metal substrate to provide a ceramic substrate (see col. 2, ln 57-65). The photocatalyst coating is made of titania (see col. 2, ln 65-col. 3, ln 3). See also col. 8, claims 1-6. The loading of the titania powder in the titania slurry is maintained in the range from about 20 weight % to about 30 weight % (see col. 8, claim 7).

The claimed titanium oxide in an amount of at least 30 mass % appears met by the teaching of the reference because the reference teaches "about 30 weight %", which inherently includes the 30% that the claim requires.

There is no patentable distinction seen between the claimed catalyst carrier and that disclosed by the reference. Thus, the claims are anticipated by the teaching of the reference.

**Claim Rejections - 35 USC § 103**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 9-11 & 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sangiovanni et al., "hereinafter Sangiovanni '561", (US Pat. 6,649,561 B2), as applied to claims 8 & 12 above, and further in view of Tanaka et al., "hereinafter Tanaka", (US Pat. 6,887,816 B2).

Sangiovanni discloses a honeycomb photocatalyst matrix as described above, except for the following differences.

Regarding claim 9-10, Sangiovanni does not teach that the  $\text{TiO}_2$  is of rutile type  $\text{TiO}_2$ . However, it would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have utilized such known  $\text{TiO}_2$  rutile type in order to achieve an improved and effective catalyst material in Sangiovanni because it is known in Tanaka '816 to use titanium oxide having rutile type crystal structure to prepare similar catalyst material (see col. 24- col. 26, claims 1-62 of the reference).

Regarding claim 11, while Sangiovanni does not disclose the claimed amount of the pre-coat layer/volume of the catalyst carrier, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have predetermined optimum amounts of such pre-coat layer and catalyst carrier sufficient to result in an effective catalyst material because it is a result effective variable in view of *In re Boesch*.

Regarding claim 14, Sangiovanni does not disclose alkali metal and/or alkaline earth metal loaded on the catalyst carrier. It would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have incorporated such known alkali metal and/or alkaline earth metal into the honeycomb photocatalyst matrix of Sangiovanni in order to achieve an improved catalyst material exhibiting sufficient photocatalytic properties when irradiated with light from a practical light source of low quantity of light, etc. because it is known and fairly suggest by Tanaka '816 (See Tanaka '816 at col. 1, ln 11-20 & col. 24, claim 12).

Art Unit: 1793

**Response to Applicants' Arguments**

6. Applicants' response, filed on 09/24/07, has been fully considered, but not deemed persuasive in view of the new ground of rejection(s) and/or objection(s) above.

**Citations**

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. All references are cited for related art. See PTO-892 Form prepared.

**Conclusion**

8. Claims 8-12 & 14 are pending. Claims 8-12 & 14 are rejected. No claims are allowed.

**Contacts**

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Primary Examiner Cam N Nguyen, whose telephone number is 571-272-1357. The examiner can normally be reached on M-F, 9:00 AM - 6:30 PM, at alternative work site.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Cam N. Nguyen/

Nguyen/cnn

Primary Examiner

December 07, 2007

Art Unit: 1793